DECIDING WHETHER TO BECOME A REGIONAL HAZMAT RESPONDER

FIRE SERVICE FINANCIAL MANAGEMENT

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ABSTRACT

The opportunity for an emergency service organization to expand their service delivery can be exciting, but it must be feasible, safe, and accepted by members of the organization. The City of Salina has significant levels of hazardous material (hazmat) risks associated with industry and transportation routes. The Salina Fire Department (SFD) recognized several years ago that their capabilities for hazmat response were inadequate. About a year after the department began work on improvements in their hazmat response, they found out that the State of Kansas was putting together a regional hazmat responder program. The state sent the first and second class cities a questionnaire that asked various questions including one about whether the department would consider becoming a regional responder in the program.

The problem that this research covers is the Salina Fire Department's (SFD) decision about becoming a regional hazmat responder for the State of Kansas. The SFD recognized that this opportunity carried with it some risks. The purpose of the research was to determine if the Salina Fire Department should become a regional responder for the State of Kansas. A descriptive methodology was used in the research.

The research questions that were addressed were:

1) How do other state regional hazmat programs operate?
2) What are the potential risks and benefits of becoming a regional hazmat response participant?
3) What are the concerns and viewpoints of other potential Kansas regional hazmat participants?

4) What critical components should be included in a regional hazmatl program?

The procedures used for the research started with a literature search in the Learning Resource Center at the National Fire Academy. The regional hazmat training coordinator for the State of Kansas was interviewed in person. Administrative personnel with regional hazmat programs in Massachusetts and North Carolina were sent questionnaires and the administrator from Oregon was interviewed by phone. A questionnaire was sent to thirty-five Kansas fire departments that had returned questionnaires that the Kansas State Fire Marshal KSFM had sent out.

The results determined that the KSFM needs to answer a number of questions concerning the regional hazmat program. The answers to those questions will provide information about the financial costs to regional response agencies, the safety of the program, and the commitment that would be required. The results also indicated that it's preferable that hazmat teams be made up with those who volunteer for the assignment.

The conclusion from the research indicates that the first thing the SFD should do is get answers from the KSFM to a list of questions. The research also indicated that certain equipment should be included on a regional hazmat response unit. A list should be acquired from other state programs to determine whether the Kansas program will include adequate equipment to maintain safety for the response teams. The SFD should eagerly join the Kansas Regional Hazmat Responder program if the interest level from within the department is sufficient, the safety of the program is solid, and the annual costs to the department are lower than $10,000.

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INTRODUCTION

Over the past century the catch phrase from citizens to taxpayer supported agencies has been, “do more with less.” The fire service has tried to address this demand by expanding its role in emergency service. Emergency medical care, confined space rescue, and hazmat response are just a few of the expanded roles that fire departments have taken on. This research will address one of those expanded roles.

The City of Salina is a centrally located community in the State of Kansas. Salina is like many other medium sized (45,000 population) cities that struggle to provide the full gamut of emergency response. Of all the services that the SFD provides, hazmat response has been the most difficult. The problem is the SFD has to make a decision concerning an expanded role in hazmat response involving the State of Kansas.

Kansas Governor Bill Graves recognized hazmat response as a state problem in 1997. When the governor first took office he heard concerns about deficiencies in hazmat response capabilities in some areas of the state (Keating, 2000). In response to those concerns the governor formed a special task force to study state and local agency abilities to handle hazmat incidents. The report indicated that improvements were needed. Agencies throughout the state were solicited to provide proposals to handle the deficiencies in hazmat. The state received three proposals and chose the proposal made by the Kansas State Fire Marshal (Keating, 2000). This proposal included a response program and a training program (Keating, 2000). The response program proposed forming regional response teams from strategic geographically located departments (Keating, 2000)

The KSFM mailed out a survey to forty-nine fire departments in the first quarter of 2000 (“The Chief,” 2000). Included in this questionnaire was a question that asked each department if they would consider being a state regional hazmat responder.

The purpose of this applied research project is to determine if the Salina Fire Department should choose to become a regional hazmat responder for the State of Kansas. The research used a descriptive methodology.

The research questions that will be addressed include:

1) How do other state regional hazmat programs operate?
2) What are the potential risks and benefits of becoming a regional hazmat response participant?
3) What are the concerns and viewpoints of other potential Kansas regional hazmat participants?
4) What critical components should be included in a regional hazmat program?

BACKGROUND AND SIGNIFICANCE

The City of Salina is close to the geographical center of the United States and is surrounded by rural area in all directions. The neighboring cities include the city of McPherson (13,000 population) thirty-five miles to the south, the city of Concordia (6,000 population) sixty miles to the north, the city of Hays (18,000 population) 80 miles to the west, and the city of Abilene (6,500 population) 30 miles to the east.

The City of Salina markets itself as the, “Crossroads of America.” Two interstate highways (as well as two rail lines) intersect the city (both north to south and east to west). Being the intersection of numerous transportation lines brings the city a

considerable amount of revenue, but it also brings the city a considerable amount of danger. Many of the transportation units passing through Salina are carrying very dangerous hazardous materials. Salina is also home to one of the longest aircraft runways in the nation.

Transportation isn't the only hazardous material risk the city of Salina has. One of the biggest battery plants in the country is located on the south edge of Salina. A considerable amount of sulfuric acid is used by this business. The City of Salina is also home to the country's largest frozen pizza manufacturer. This business uses a chemical called anhydrous ammonia as a refrigerant to cool their pizzas. Another business that calls Salina its home is a national truck wash business. This company warehouses their undiluted chemical cleaner (hydrofluoric acid) in Salina. And, just recently the world's largest galvanizing plant opened on the northern edge of the city.

The SFD has ninety-two (92) full time personnel. The department operates out of four fire stations and provides fire prevention services, fire suppression, advanced life support emergency medical care (transport), and technical response. In addition to the city population of 45,000, the SFD also serves another 6,000 people in the county. The city population receives the complete service of the SFD and the county residents receive rescue and ambulance service only.

The SFD's history shows a minimal amount of focus on hazmat response. In 1978, the SFD's new fire chief made hazmat response one of his priorities. A number of SFD members received advanced hazmat training and some basic equipment was purchased. The entire department received basic awareness level hazmat training. As the department entered the 90's the focus on hazmat response had slowly withered.

After a visit to the National Fire Academy in 1999, the author recognized that the SFD was far behind other departments in hazmat response and needed serious attention. Staff officers and the department's improvement team discussed the problem. The decision was made to assign specialty assignments to each of the crews in the four fire stations and that hazmat response would be one of those specialty assignments. Other goals were to get the entire department trained to operations level and the specialty hazmat members trained to hazmat technician. The entire department is scheduled to receive the operation level training by January 1, 2001.

The SFD's renewed interest in hazmat response coincided with an interest from the state's Governor. The governor's office had been looking at the statewide hazardous material response capabilities since 1997, when the governor took office. In 1999, both the House and the Senate passed House Bill 2012 that established a state hazmat program administered through the KSFM. The program is a two-part system consisting of response and training (KSFM, 2000).

In January of 2000 the KSFM sent out a survey to first and second class cities in Kansas. One of the survey questions asked if the department was interested in becoming a regional hazmat responder for the state. The SFD was interested, but certainly didn't want to make such a critical decision without carefully analyzing the proposal. The decision could have serious impact in the areas of safety, politics, and finances.

The research for this project was done to accomplish the requirements of the Executive Fire Officer Program at the National Fire Academy and ties in with the Fire

Service Financial Management course. Planning, forecasting, analysis, and alternative funding all closely relate to the subject of this research project.

LITERATURE REVIEW

In his article, "How to Develop and Manage an Industrial Hazardous Materials Emergency Response Team", FIRECON President Craig Schroll says that the first consideration in developing a hazmat response team is to determine whether you need one (2000). Schroll (2000) goes on to break risk and hazard analysis into four areas; 1) chemicals, 2) processes, 3) uses, and 4) potential incidents. The SFD renewed their efforts in hazmat because they had identified areas of risk and hazard in each of the above four areas. These same concerns were what prompted the North Carolina legislature to pass legislation establishing a regional hazmat program in their state (Groves, personal communication, July 2, 2000).

Communities nationwide have recognized the safety issue of how to provide hazmat response in a cost-effective manner (USFA, 2000). The costs of providing hazmat response can be out of reach for many communities. In the Canadian Association of Fire Chief's 1990 publication, "Guidelines for the Development of Regional Hazardous Materials Response Teams", the authors tell readers to expect the cost of an upstart well equipped hazmat response team to be around $150,000 to $200,00 (Borgardt, Gaade, & Morrison, 1990). A hazmat equipment and supplies list on the internet lists costs for each item and totals $137,982 (htt://www.duke.edu/~pirre001/inventoryframe.html). In addition to the start-up costs, each of the hazmat teams will also spend between $50,000 and $75,000 annually on supplies, vehicle maintenance, damaged or lost equipment, training costs, and

communication bills (Borgardt et al., 1990). The disturbing part is this doesn't include personnel or vehicle costs. During a conversation with the KSFM hazmat training coordinator A.J. Clemmons, he was asked what hazmat costs the State of Kansas would cover in their new program. Clemmons said that all the costs for hazmat training would be covered under the state's program and he wasn't sure what other expenditures would be covered (personal communication, March 23, 2000).

An important point that Borgard, Gaade, and Morrison (1990) make in their report is, "Once you are in the business you can't get out, because the public will now expect you to respond to hazmat incidents" (pg5). Borgardt et al. (1990) emphasized the importance of making sure you'll be able to continue the team, before you decide to take the plunge. In his article, "Hazardous-Materials Response: Know Your Limitations", author David Peterson (2000) quotes Captain Harry White from Nashville about this same concern. Captain Harry White said, "Most hazmat teams are put together with good intentions and little else" (Peterson, 2000, pg 166). Peterson (2000) also quotes White posing the question of whether departments were aware of what they were getting into when, "diving into the hazmat response business" (pg 166). D. L. Rubin emphasizes this point in reference to funding preparation when he paraphrases an old adage about the military saying, "…a fire department travels on its budget" (Rubin, 1996, pg46).

The article "How Has Hazmat Changed?, " in the International Fire Chief's publication On Scene, tells the reader that communities have used two solutions to overcome the difficulties of hazardous material response: 1) the development of state wide mutual aid agreements; and, 2) the development by states in Regional Response

Teams (2000, pg 4). Fire departments in Kansas have addressed hazmat response as best they can from an individual department approach. Governor Graves' task force reported that this approach isn't working on a statewide basis and recommended that the state establish regional hazmat response teams (Keating, 2000).

In his article, "Regional Haz-Mat Teams Are a Cost-Effective Alternative", author John R. Cashman (1994) cites the need for extensive, on-going planning. Cashman says that usually a regional director is appointed to do the needed legwork (1994). Cashman (1994) lists the components of a regional hazmat program as funding, billing, communications, training, assignments, physical examinations, rank structure, response areas, apparatus, and equipment. Personal communication (March 23, 2000) with Kansas hazmat training coordinator Clemmons revealed that the KSFM has discussed each of these components, but hasn't decided exactly how they'll face each of them.

The State of Massachusetts has a regional hazmat response program that has been in place since 1994. With uniformity and cost effectiveness as key points, Massachusetts created a task force in 1982 to find the best way to address hazmat response for the state (D. Ladd, personal communication, June 8, 2000). D. Ladd said the task force recommended forming a six-region response system that could provide response within one hour anywhere in the Commonwealth (personal communication, June 8, 2000). The response teams provide the local fire departments with technical support and specialized equipment, but the teams aren't the fire personnel (D. Ladd, personal communication, June 8, 2000). The Kansas program will utilize existing fire department personnel from the regional sites and they will serve as the regional teams (Clemmons, personal communication, March 23, 2000). The regional hazmat program

in Oregon is operated by existing fire department personnel (S. Otjen, personal communication, July 7, 2000).

D. Ladd said the Massachusett's program provides each team with a Technical Operations Mobile Unit (vehicle), computers, printers, personal protective equipment, containment equipment, a computerized weather station, an elaborate communications system, and the software needed to provide mapping and chemical information (personal communication, June 8, 2000). The apparatus and equipment remains the property of the State of Massachusetts (Ladd, personal communication, June 8, 2000) Kansas will not provide the same equipment and apparatus that Massachusetts does. The KSFM recognizes that response vehicles are needed, but hopes to use the apparatus (and some of the equipment) that fire departments already have (Clemmons, personal communication, March 23, 2000) Clemmons acknowledged that some of the smaller populated areas don't have a response vehicle or the funds to afford one (personal communication, March 23, 2000). Clemmons thought the state would have to look at this problem and that possibly some response vehicles could be acquired from another state agency such as the Department of Transportation (personal communication, March 23, 2000).

D. Ladd said that the State of Massachusetts established a standardized training system for their hazmat program and that the Massachusett's Firefighting Academy, private industry, and local industries are used to provide the training (personal communication, June 8, 2000). This is another area that doesn't quite compare with Kansas. A collage of agencies provides emergency training in Kansas. The KSFM recognizes this as a shortcoming and plans on choosing one set of curriculum for

hazmat response training (Clemmons, personal communication, March 23, 2000). Clemmons said that his intentions are for the regional members to be the instructors and will deliver the training to others (personal communication, March 23, 2000).

The programs of Massachusetts (Ladd, personal communication, June 8, 2000), Oregon (Otjen, personal communication, July 7, 2000), and North Carolina (Groves, personal communication, July 2, 2000) all cover the costs of medical exams for team members and the personnel costs to take them. D. Ladd said Massachusetts also covers the training cost for three hundred fifty (350) fire fighters and training is reimbursed up to ninety six hours (96) per year either at overtime or replacement (personal communication, June 8, 2000). Clemmons didn't have the answer to compensation for salaries incurred during training and how many people the state will train (personal communication, March 23, 2000). In a document from the KSFM presented at the Kansas Association of Counties 1999 Annual Conference, it says that a hazmat awareness program will be delivered to "all" emergency responders statewide at no cost" (KSFM, 1999). Hazardous Materials Response Program," November 16, 1999). The number of Kansas fire fighters "alone" number in the thousands.

In Oregon and North Carolina the state handles the collection for incident response and in Massachusetts that responsibility is with the response agency. Ladd said that a missing part of their legislation required response agencies do collections but it has worked well when the responsible party is a reputable person (personal communication, June 8, 2000). Ladd said the response agency has to eat the personnel costs when they can't collect and the state eats the costs of supplies (personal communication, June 3, 2000). When this is the case the community has to

eat the personnel cost and the state eats the supplies. Massachusetts is working to fix this component of their program (Ladd, personal communication, June 8, 2000). The Kansas program is projecting that they'll be responsible for billing the responsible party for hazmat incidents (Draft Outline Regional Hazmat Program, 1999).

The State of North Carolina uses a unique approach in addressing the cost of training, medical monitoring/physicals, worker's comp and administration. Groves said the regional response teams are given a yearly contract that covers these costs (personal communication, July 2, 2000). The KSFM talks vaguely about a contract in an early draft outline of the regional hazmat program. It states, "Response teams will be organized, trained, equipped and contracted on a regional basis…" (Draft Outline Regional Hazmat Program, 1999).

FIRECON President Craig Schroll says, "…all the other steps will be completed for nothing if training is not effective (2000). Clemmons says that he'll place the initial focus of the training program on the hazmat technician level (personal communication, March 23, 2000). The reason he gives is that the regional response personnel are the initial priority and they need this course (Clemmons, personal communication, March 23, 2000).

A major factor in taking on a new program is the financial cost to the department. Clemmons said that most hazmat curriculum lists the hazmat technician program as an eighty (80) hour program, but he's looking at a minimum training time of one hundred sixty (160) hours. Clemmons would also like to see the regional hazmat technicians take the eighty (80) hour National Fire Academy Chemistry of Hazmat class (personal communication, March 23, 2000). This would pose the question of how departments will

get employees to the training. Fourteen (14) of the Kansas departments who returned a survey questionnaire from the author currently have personnel who take hazmat training both off-duty and on-duty (Appendix B). The registration costs of classes will be completely covered under the Kansas plan, but Clemmons wasn't sure about the costs of overtime or replacement salaries (personal communication, March 23, 2000). Ladd said the Massachusett's plan covers all the training costs, including salaries up to ninety six (96) hours a year (per regional responder) at overtime or replacement (personal communication, June 8, 2000).

In the analysis section of the National Fire Academy Fire Service Financial Management course it touches briefly on the importance of stakeholders. The reader is advised that, "The most complete analysis with the most detailed findings can fail to have any positive impact if resisted by those responsible for implementation" (Fire Service Financial Management, SM6-7). The author placed a short article in the Salina Fire Department's weekly newsletter asking for anyone interested in becoming a team member for the state harmat program. Only two people called with any interest.

The KSFM tried to find out what interest there was from fire departments in the state. The KSFM mailed a survey to forty-nine (49) fire departments in first and second class cities ("The Chief," 2000). There were twenty two (22) departments that indicated interest in becoming a regional hazmat responder and another sixteen (16) that said they would offer support ("The Chief," 2000).

Politics is another concern for a regional hazmat program. Several different groups in Kansas (local departments, Kansas University, Kansas Firefighter's Association, Kansas State Fire Marshal, Community Colleges) deliver fire service

training. Clemmons said some groups became resistive when they found out he'd conferred with Kansas University about the training program (personal communication, March 23, 2000). The "Fire Chief's Handbook" says the first place you should look for political intrigue is, "in your own team's dugout" (Bachtler, Brennan, 1995, pg 109). Milou Carolan spoke about the political power of a regional approach in the article, "Regional Approaches to Environmental Management." Carolan says, "An organized, cooperative effort by a number of communities may also help leverage support for a regional project from state and federal agencies and authorities" (1990, pg 16).

Regional hazmat programs have been developed because individual agencies don't have the resources to cover the costs of providing all the needed equipment, apparatus, and training (Garza, 1992). In the article, "Regional Approaches to Environmental Management," Carolan lists five advantages of using a regional approach, 1) Consistency, 2) Efficient management of resources 3) Sharing liabilities, 4) Political Power, and 5) Managing public opinion and public education (1990). Under consistency Carolan (1990) says that regional cooperation results in consistency of local laws, regulations, policies and practices. Efficiency can be enhanced because communities can share resources, information and expertise (Carolan, 1990). Carolan says that lawsuits are inevitable and that communities can share costs and resources when responding to legal issues (1990). A group of communities can leverage support for a regional project (Carolan, 1990). Carolan says that a regionally coordinated public information and education program can assist in managing public opposition and building public support (1990).

Regional response can give personnel the opportunity to respond to more incidents. This eliminates duplication of effort and produces responders that are better prepared to handle a hazardous material incident (Borgardt, Gaade, and Morrison, 1990). In addition to providing team members with greater access to needed equipment, more buying power, and increased training regional response teams offer the most essential element of all, increased safety to their members (Cashman, 1994).

One of the disadvantages of the regional hazmat response team concept is the time that deployment takes and the personnel (and resources) that communities must provide to the regional teams (USFA, 2000).

Communications can be a problem when multiple teams are working together. If regional teams don't have clear standard operating guidelines on communications, you may end up with three departments on three different radio frequencies (Rubin, 1996).

Regional teams cannot expect to perform together at an incident without training together. This can be difficult (and expensive) for small departments that don't have adequate personnel to allow fire fighters to attend out of town training (Rubin, 1996). Overtime must be paid to most personnel that attend off-duty training (USFA, 2000). Another problem with training personnel is the high turnover rate. The USFA sites the lack of advancement in the hazmat field as a contributing factor (2000, June 15). Organizations must also make sure that trained personnel realize they won't always be able to use their knowledge and skills. In his article, "Hazardous-Materials Response: Know Your Limitations", David F. Peterson says, "The problem with a person's having technician-based training comes when that person responds to a hazmat incident outside of his role on a hazmat" (pg164).

Regional teams require extensive, on going planning and willingness to cooperate in a productive fashion (Borgardt, Gaade, and Morrison, 1990). Kansas training coordinator Clemmons has already faced some unwillingness to cooperate in the development of the training program (personal communication, March 23, 2000).

Chief officers have the responsibility to deliver a full range of emergency and non-emergency needs with limited resources. These demands often exceed the resources. The National Fire Academy course "Fire Service Financial Management" poses the question, " If funds are devoted to training and equipment for a first responder program and those funds are diverted from the acquisition of new hoses, what will the impact of the transfer be" (NFA, "Fire Service Financial Management"). This same question can be asked about taking on the role of a regional hazmat responder.

Summary

Four different people with responsibilities for regional hazmat programs were contacted. A.J. Clemmons was chosen as a person to interview because of his position as training coordinator for the Kansas regional hazmat program. In fairness to Clemmons, he was asked some questions that weren't in the area of his responsibility. The North Carolina, Oregon, and Massachusetts' administrative coordinators were all three contacted because Kansas modeled their program after some of their components. The three programs were similar in some features, but all had some slight variations. The other states that provided information were able to give real life feedback from systems that are in operation. Clemmons was able to give a general direction of where the state of Kansas is heading, but wasn't able to answer some very important questions.

The periodical review uncovered background information about regional hazmat programs, addressing the basic regional approach, finance issues, background information on the Kansas program, and the actual hazmat response issues.

The author's ten question survey provided basic information from Kansas fire departments about their overall status in hazmat response and what they expect from the Kansas program.

The author's blip in the department's newsletter asking for internal interest in becoming a regional responder was a preliminary question to see what the level of interest was in the department.

PROCEDURES

The research for this project started in February of 2000 while the author was at the National Fire Academy attending the class, "Fire Service Financial Management." Research started with a literature search in the Learning Resource Center (LRC) at the National Fire Academy.

The Kansas State Fire Marshal's office was contacted on March 15, 2000 and a date was set to meet with the state's regional hazmat training coordinator, A.J. Clemmons. Clemmons came to the Salina Fire Department 222 W. Elm on March 23, 2000 @ 09:30. The interview with Clemmons lasted until approximately 11:30. Clemmons provided a map that showed the proposed regional hazmat response sites. The author requested copies of any state documents on the state's regional hazmat program. That information arrived one week later and consisted of a copy of the Kansas Fire Chief's periodical "The Chief", a report that had similar information that was

in “The Chief”, results of a state survey, and a rough draft of the state regional hazmat program.

A survey instrument was used for the research. A survey questionnaire, called “Examining the Viability of Being a Participant in the State Hazardous Material Program Survey” (Appendix B), was written and distributed to the thirty-three (33) departments that responded to the earlier KSFM survey. Twenty-two (22) departments returned the survey questionnaire. The purpose of the survey was to determine; 1) why departments were or were not interested in joining the regional hazmat program, 2) what expenses they’re anticipating, 3) the benefits they anticipate, 4) the faith they have in the new program, 5) what they’d like to see in the program that isn’t there, 6) where they’re currently getting hazmat funds, and 7) whether their personnel currently receive hazmat training on or off-duty (Appendix B).

The regional hazmat programs from Massachusetts, Oregon, and North Carolina were searched on the Internet. A broad-based search was also done on the Internet. An email address was supplied for a contact person for Massachusetts, Oregon, and North Carolina. Administrative persons from each of these states responded to the email questionnaire. The administrative persons from Massachusetts and North Carolina answered a list of questions (Appendix C) by email. Oregon regional hazmat coordinator Sue Otjen called the author on July 7, 2000 @ 13:15 and was interviewed with the same list of questions that were emailed to the two other states.

The author placed a small article in the Salina Fire Department’s weekly newsletter asking for interest from any personnel who were interested in becoming state regional hazmat responders.

Limitations

There are many questions that haven't been answered by the Kansas State Fire Marshal. These answers will be crucial to any decision that a department would make.

When looking at a program from another state, any significant differences can make it difficult to make a comparison. All of the programs that were compared had slight variations. The population base, department size, and minor program differences were evident in all of the programs.

The article in the Salina Fire Department newsletter was brief and may not have explained the program enough for personnel to make a commitment.

RESULTS

How do other state regional hazardous material programs operate?

The research found that many states and cities have developed regional concepts to address hazardous material response. The state programs that were chosen for the research began in the early 1900's and have been successful with only minor glitches. Most of the state programs purchase all the apparatus and equipment for their regional response program. The Kansas program plans on purchasing some equipment, but Clemmons said they don't plan on purchasing apparatus (personal communication, March 23, 2000). Clemmons did talk about acquiring some old trucks possibly from the Department of Transportation. Clemmons said that the state would try to utilize the equipment that departments have and purchase only equipment that's necessary (personal communication, March 23, 2000).

Two of the states (North Carolina, Massachusetts) cover the costs of salaries incurred by the regional responders during training. Oregon administrator, Otjen, said that Oregon doesn't currently cover the costs but possibly will in the future (personal communication, July 7, 2000). Clemmons said the state of Kansas hasn't decided how they'll address that issue, but emphasized how expensive the training will be (personal communication, March 23, 2000).

Massachusetts was the only state that didn't directly collect for regional hazmat costs and this is only because the legislative law was written improperly (Ladd, personal communication, June 8, 2000). The Kansas program will place the recovery responsibility on the state (Clemmons, personal communication, March 23, 2000).

What are the potential risks and benefits of becoming a regional hazardous material response participant?

Clemmons said that the initial hazmat technician class will be one hundred and sixty (160) hours and annual training will be around twenty four (24) hours. Fourteen (14) of the Kansas departments that responded to the author's questionnaire indicated that hazmat training at their department takes place on duty and off duty (Appendix B). The IAFC publication, "On Scene" article "How Has Hazmat Changed" tells the reader that controlling costs and finding money for hazmat are persistent problems (2000, p5).

There's also the risk of becoming a regional hazmat responder and then deciding for whatever reason that you can't remain. In the American Fire Journal, J.V. Garza cautions against making the quick leap into hazmat and that you may not be able to withdraw because of the public's new expectation (Garza, 1992).

The fire departments that responded to the author's questionnaire anticipate several benefits from involvement in the state's hazmat program. Training was mentioned by eleven (11) of the respondents and increasing the proficiency of their technicians was cited by three (3) of the respondents (Appendix B). In his article, "Hazardous-Materials Response: Know Your Limitations", author David Peterson tells the reader, "…most public agency hazmat emergency response teams do not respond to enough hazmat emergencies to develop and maintain proficiency" (2000, pg166). The Canadian Association of Fire Chief's "Guidelines for the Development of Regional Hazardous Materials Response Teams", mirrored those of the author's respondents to the survey questions. The report lists; a) cost sharing equipment purchases, b) cost sharing of training, c) sharing inter-departmental expertise, and d) opportunity for more responses (Borgardt, Gaade, & Morrison, 1990).

Another similar question on the author's survey asked why the Kansas department was interested in the state hazmat program. Some of the respondents saw the opportunity as a way to expand their service to the community without additional costs and one respondent saw the opportunity as a way to increase the value of the department (Appendix B).

What are the concerns and viewpoints of other potential Kansas regional hazmat participants?

The major concern of those who responded to the author's survey questions was the need for further information. Ten (10) of the responders mentioned something about having more information (Appendix B). A three-page synopsis of the Kansas Regional Hazardous Materials Response & Training Program was presented at the

annual Kansas Association of Counties annual conference on November 16, 1999. This short paper listed a timetable for implementation (Keating, 2000). The first region contract was supposed to be initiated by March 2000 and complete coverage is targeted for the middle of 2001 (Keating, 2000).

One of the author's survey questions asked the departments to rate their faith in the state's program. The responders rated the state an average of 6.54 on a scale of 1-10, with 10 being complete faith and 1 being no faith (Appendix B).

On the question of willingness to incur expenses, only three (3) responders said they would be willing to incur any expenses from becoming a regional responder (Appendix B). One respondent said it would have to be "minimal", one said a maximum of $1,500 and the last said $15,000 maximum (Appendix B).

What critical components should be included in a regional hazardous material program?

The Canadian Association of Fire Chief's "Guidelines for the Development of Regional Hazardous Materials Response Teams" outlines the critical components of a regional hazmat program. It appeared from the personal communication with Clemmons that the State of Kansas has performed the initial steps well. The Canadian report says, "…there has to be a willingness among participating agencies to cooperate in a fashion that will foster relations in a professional setting (Borgadt, Gaade, and Morrison, 1990). Kansas' fire departments were unified in their support of the regional hazmat response team concept with fire departments acting as the team and the KSFM administrating the program. After being selected as the lead agency, the KSFM established an oversight committee to review and develop the program's operational

regulations, determine regional boundaries, and select hosts. The plan is for the group to stay in place and act as an oversight committee (Keating, KSFM).

The Canadian report says that the next step is to identify the participating agencies. The guidelines say the role of the participants and the scope of the team's activities should be clearly stated (Borgardt, Gaade, & Morrison, 1990). The guideline says that the cost recovery method should be clearly stated (Borgardt et al., 1990). Clemmons said the Kansas program would reimburse the host departments for all expenses that were incurred on an incident (personal communication, March 23, 2000).

Funding is listed as a critical component in the Canadian guidelines. Grants, industry, local service clubs, equal shares, call-out fee, and taxes are listed as some different funding mechanisms (Borgardt, Gaade, & Morrison, 2000). Clemmons said the Kansas' program will generate around $500,000 annually through an insurance fee and that the money will go directly to the KSFM (personal communication, March 23, 2000). Oregon's hazmat administrator, Sue Otjen, said that Oregon generates the funds for their hazmat program through a petroleum load fee. The annual income from this fee is $2.8 million (personal communication, July 7, 2000).

The Canadian guideline lists team structure and staffing as another component (Borgardt, Gaade, & Morrison, pg11). Clemmons said the Kansas regional response teams will be a minimum of six personnel, but may have to be made up from more than one department (personal communication, March 23, 2000). The "Hazardous Materials Response Book" suggests that a minimum of ten (10) persons (three to six fire service personnel) make up a team (Henry, 1989). Henry suggests that in addition to the six (6) fire service personnel that a minimum of, two (2) health care authorities, one (1) law

enforcement representative, two (2) to four (4) industry or academic, and one (1) legal representative make up the team (1989). The Alameda County South Zone in San Francisco Bay area has a regional response program that has a minimum of six (6) hazmat technicians on duty per day (Garza, 1992).

The next component listed in the Canadian guidelines is training. Kansas' training coordinator Clemmons said he'd begin the training program by concentrating on the regional teams (personal communication, March 23). The regional response personnel will then be used as instructors for the future classes that'll be delivered to other emergency workers (Clemmons, personal communication, March 23, 2000). The research found that not all state programs get involved in the training aspect. Oregon supplies funds for training, but doesn't get involved in the delivery or the certification aspect (Otjen, personal Communication, July 7, 2000). On the issue of salary for time in class, the State of Kansas isn't sure that they'll be able to compensate fire fighters for that time (Clemmons, personal communication, March 23, 2000). Oregon's hazmat coordinator, Sue Otjen, said their program has had problems with getting fire fighters to take training classes, because they don't compensate the student for the time they spend in class (personal communication, July 7, 2000). Otjen said the state has plans to try and change that policy so they can improve training class attendance (personal communication, July 7, 2000).

Communications is another component that was listed in the Canadian guidelines. The Canadian guidelines say that hazmat teams should have various communication tools including; "telephones (cellular and landline), portable radios, communications centers, computers, and fascimiles" (Borgardt, Gaade, & Morrison,

1990, pg16). One problem that F. D. Peterson points out in his article, "Hazardous Materials Response: Know Your Limitations", is that different response organizations will typically use different frequencies (2000). Peterson (2000) points out that some states have applied for one "on-scene" command radio frequency that all communities can use." Peterson also says to make sure that all portable radios are intrinsically safe (2000).

Equipment is the last component that the Canadian guidelines list. The Canadian guidelines gave what they called "a basic list" of hazmat equipment (Borgardt, Gaade, & Morrison, 1990). Some lists can become quite lengthy and complex as noted in a listing taken from the internet that included four pages of equipment and tallied up to a cost of $137,982 (www.duke.edu/~pirre001/inventoryframe.html).

Direct contact was made with administrative hazmat personnel in Kansas, North Carolina, Oregon, and Massachusetts. Questions were emailed to the personnel from North Carolina and Massachusetts. Direct phone communication was made with hazmat administration personnel from Oregon and Kansas. Thirty-three (33) Kansas fire departments that had responded to a KSFM survey were sent a questionnaire.

Kansas hazmat training coordinator Clemmons answered questions both on training and the overall program. Clemmons was unsure on many aspects in the overall program. Clemmons didn't know whether state would have funds for compensating personnel for their time spent in training, but said he would do everything he could to get it done (personal communication, March 23, 2000). Clemmons saw the need for mutual training between the different departments that make up the teams, but

wasn't sure how it would take place or how much that would entail (personal communication, March 23, 2000).

Equipment for the Kansas program will mostly include what's already owned by the future response agencies (Clemmons, personal communication, March 23, 2000). Clemmons acknowledged that this might cause a problem because each department may have different equipment (personal communication, March 23, 2000). The "Hazardous Materials Response Handbook" says, "It is vital to successful operations that personnel be totally familiar with all of the tools and equipment carried" (Henry, 1989, pg100).

Clemmons said the first priority for the Kansas program is getting the regional teams in place (personal communication, March 23, 2000). Clemmons said the state would address the needs for hands-on training by building a professional simulation unit that will be placed on a semi truck (personal communication, March 23, 2000). The state will provide reimbursement to the regional departments for all the expenses they incur on a response and they'll handle the collection from the responsible party(s) (Clemmons, personal communication, March 23, 2000). Whether the cost of physicals for the response personnel (and the time to take them) would be covered by the state was another question that Clemmons wasn't sure about (personal communication, March 23, 2000).

Hazmat administrator David Ladd was emailed on June 8, 2000. Ladd said the Massachusetts' hazmat program has been successful (personal communication, June 8, 2000). Ladd said the Massachusetts' program has very little cost to the regional sites (personal communication, June 8, 2000). All the apparatus and equipment are

purchased by the state and the state pays for the regional responder's medical physicals and the time to take them (personal communication, June 8, 2000). The Massachusetts' program planned on having the state recover incident costs, but it was written up incorrectly causing the individual agencies to collect on their own (personal communication, June 8, 2000). Ladd said that it works well when the responsible party is industry and can be identified, but it turns out to be a nightmare when it isn't (personal communication, June 8, 2000). Massachusetts owns all the equipment and pays for training at overtime or replacement. The team sizes in Massachussetts range from 40-70 members each (personal communication, June 8, 2000).

Jim Groves, the North Carolina hazmat program director, was contacted by email on July 2, 2000. The North Carolina program started up because of some of the same problems that Salina has with high volumes of rail and highway traffic (personal communication, July 2, 2000). North Carolina pays the expenses through a yearly contract. Ladd said monies for administrative services, medical monitoring, worker's compensation, physicals, and training are paid for by the contract fee (personal communication, July 2, 2000). For equipment purchases, Ladd said the state generates around $500,000 annually through taxation (personal communication, July 2, 2000).

Sue Otjen, regional program director for Oregon, was called by phone on July 7, 2000. The Oregon program is similar to the proposed Kansas program with the response personnel being the existing fire department personnel. Oregon's program utilizes larger regional teams (up to eighteen members) than what Kansas proposes (personal communication, July 7, 2000). Otjen said the state of Oregon does the collection for any incident response and it pays the regional team regardless if they

collect (personal communication, July 7, 2000). Otjen said the annual budget for the Oregon program is around 2.8 million dollars and the state pays for equipment, apparatus, medial physicals, and training (personal communication, July 7, 2000). The author asked Otjen if they had ran into any problems with their program. Otjen said the only problem have been in the area of turnover and training (personal communication, July 7, 2000). The larger departments in Oregon have had problems with turnover in the hazmat responder ranks (personal communication, July 7, 2000). Otjen also said the state doesn't reimburse the agencies for the salaries personnel incur during training classes and that this has kept some from attending the class (personal communication, July 7, 2000).

The author sent a questionnaire out to thirty-eight (38) fire departments that had responded to a KSFM questionnaire. The first question asked why their department was interested (or not interested) in becoming a regional program host (Appendix B). The responses were varied but basically the ones who were interested in becoming a regional team wanted to enhance the service to their community and the ones who didn't want to be a regional team listed resources as the reason (Appendix B).

The second question asked what expense the department currently incurs for hazmat. The answers ranged from $1,000 to $45,000. Some of the answers that didn't list an amount just made reference that it were a small amount (Appendix B).

The third question asked if the department anticipated increased expenses through their involvement in the state's hazmat program and an estimate of the costs, or how much willing to spend. The overwhelming answer was "no" to anticipated increased expenses and the departments that answered yes either wanted more

information before committing a dollar amount, or were only willing to spend a minimal amount (Appendix B).

The fourth question asked what benefits were anticipated from involvement in the state's program. The responses to this question centered mostly on training but also listed increased proficiency for technicians and reliable assistance (Appendix B).

The fifth question asked for a rating (1 to 10 with one being no faith and 10 being complete faith) of their faith in the state program. The responses ranged from three (3) to nine (9) and averaged 6.54 (Appendix B).

The sixth question asked what the person would like to see in the state program that's currently not there. The responders overwhelmingly wanted more information about the program. Training was another common response along with the wish for a reimbursement program for responders (Appendix B).

The seventh question asked whether personnel receive financial incentives for becoming certified in operations level, hazmat technican and specialist. None of the respondents give incentive for operations level training, three (3) respondents indicated that they gave financial incentive for technician level training and one (1) respondent gave incentive for specialist (Appendix B).

The eighth question asked if the department trained on duty or off duty. Fifteen (15) responded both, (6) six responded on duty and one (1) left it blank (Appendix B).

The ninth question asked where the department currently received financial support for hazmat response. Nineteen (19) respondents indicated that they receive hazmat funds from city taxes and five from county tax. Two (2) respondents get funds

from the Kansas Department of Emergency Management, three (3) use cost recovery, one (1) federal grants, and one (1) uses private industry (Appendix B).

The last question asked if the respondent wanted a copy of the research paper. Sixteen (16) responded yes and six (6) responded no.

DISCUSSION

The research found that the State of Kansas was correct in their evaluation of the state's need for better hazmat response capabilities. Those who responded to the author's questionnaire clearly believe there's a need for a regional hazmat response program and they're eager to see it move forward (Appendix B).

There were four literature documents that came from the KSFM. One of these literature documents ("The Chief") was sent to the author because he's a member of the Kansas State Association of Fire Chiefs and the other three were sent to the author upon request. The February article in "The Chief" tells the reader that the Oversight Committee has met three times as of February (2000, pg3). There hasn't been any communication to the author's department concerning those meetings or any other meetings. The draft outline of the proposed "Hazmat Regional Response System" is the most comprehensive of the four Kansas documents. The potential regional response teams voiced an overwhelmingly wish for more information in the author's survey questionnaire. The author concurs with that same sentiment. Information from the KSFM seems to be very limited considering the magnitude of the program. A department's decision will hinge on the components of the program and how those components will be addressed. Two KSFM documents (The Chief, Kansas Association

of Counties Annual Conference) identify March 2000 as the target date for the first online hazmat region. The KSFM is moving forward and the only true idea of interest level from potential regional response teams is an answer to a questionnaire that was answered with minimal information.

The SFD must have additional information from the KSFM to generate a clear picture of the financial costs and the general operating procedures of the program. One of the major financial considerations will be the cost of training. The initial training won't be the only consideration for the SFD. Initial training requires the largest lump sum time, but ongoing training can add much more than the initial training. One would also assume that the state would want to have some mutual training with the different departments that make up a regional team. Any training that involves off duty time will come at a significant cost to the SFD.

It doesn't appear that the state is going to purchase any apparatus or equipment if they deem that the department has sufficient provisions. The state also recognizes the problem with having responding units with different equipment, but it appears that's the way it's going to happen. The SFD has an ambulance that's been converted into a hazmat unit, but it's very doubtful that it would be of sufficient size to carry all the equipment needed for a hazmat technician unit. The SFD would have to answer the question of whether the safety of the response team would be compromised if the state can't supply the necessary hazmat response equipment.

The literature research found data and experts that were uniform in their recommendations. The three state regional hazmat administrators and several other literature resources all supported the regional hazmat response concept. The research

didn't come up with a solid foundation for what equipment should be the minimum for a hazmat response unit. When the author asked the Massachusetts hazmat administrator what should be the minimum equipment for hazmat response he said, "That's a difficult question, but more is better" (Ladd, personal communication, June 8, 2000).

The data showed that only a few departments are utilizing any funding sources other than taxes for hazmat response. The Oregon program that generates funds through a petroleum load fee seems to be an equitable method of acquiring funds.

The Oregon program has an annual budget of 2.8 million dollars and the Kansas program has a budget of $500,000. Will the state of Kansas have enough funds cover a quality program?

The decision of becoming a state regional response participant is a decision based upon a risk/benefit analysis. In his article, "Risk-Benefit Scale Your Key to Survival", Buddy Martinette makes reference to an internal evaluation process that takes place when evaluating emergency scene situations (1998). Martinette says that this risk/benefit analysis needs to come to the forefront of our strategic decision making process (1998).

RECOMMENDATIONS

If the State of Kansas asks the Salina Fire Department to become a state regional hazmat responder, the department needs to do three things;

1) Get additional answers to questions from the state about training, personnel, response, apparatus/equipment, response, and communication,
2) Insure that the state's plan will provide adequate safety for responders, and

3) Attain a minimum number of Salina Fire Department members as volunteer participants in the program.

The questions for the State of Kansas should include:

Personnel Questions

1) How many personnel must the Salina Fire Department provide for the regional hazmat team?
2) Will the State of Kansas pay for medical physicals (and the salary when taking them)?
3) Will the state be responsible for regional liability issues?
4) Will the state be responsible for regional team member injuries incurred during a regional response?

Training Questions

1) What will be the total training hours required for certification, annual refresher training, and mutual training?
2) Will the state pay salary costs incurred during training when they must occur off duty?
3) Will the mobile training prop be provide sufficient hands-on training?

Apparatus/Equipment Questions

1) Will the Salina Fire Department's hazmat vehicle be sufficient and if not, will the state acquire one for Salina?
2) Will the State of Kansas pay for the service and repair of the response vehicle?

3) Will the State of Kansas purchase the additional equipment that the SFD deems necessary?
4) Will the state insure that regional teams have standardized equipment?

Response Questions

1) What would be the area of response for the SFD?
2) What would be the required response time for SFD?
3) Will the state provide the regional team members with pagers?

Communications Questions

1) Will the state provide portable radios for the regional hazmat teams?
2) Will the state provide computers and cell phones for the regional hazmat vehicles?
3) Will the State of Kansas provide computers and fascimiles for the response vehicles?

The SFD will be able to get a close estimate of what expenses will be incurred with the regional response participation once the State of Kansas provides answers to the above questions. The SFD would be willing to spend additional funds if the answers to issues other than funding are acceptable. The SFD would not be interested in participation if the additional costs were greater than $10,000 annually.

Another key consideration for the SFD is safety. The State of Kansas must provide the equipment that meets the necessary needs of the regional response team. The author has requested an equipment list from North Carolina, Oregon and Massachusetts. A hazmat advisory committee should be immediately established at the SFD and should be composed of the specialty members presently at fire station two.

This committee should review the three equipment lists from the other states and make recommendations for what equipment the SFD would need on the hazmat resposne unit if the department was to become a regional response team. The committee should review the entire state plan and give their opinions about the overall safety of the program.

If the state's answers to the questions on funding and equipment prove to be a fit for the SFD, the members must be approached again for their interest in the program. The minimal interest level that was found earlier was understandable since very little information was provided. An information packet with the state's plan along with the plan for the SFD should be developed and presented to department members. The question of interest in becoming a regional response member can again be presented to the members. This should be done within one week of determining the state's proposal acceptable and should be coordinated with the newly formed hazmat committee. The minimum number of interested members should at least equal the minimum number required by the State of Kansas.

The SFD should eagerly sign a regional hazmat response agreement with the State of Kansas if funding, safety, equipment and departmental interest can be addressed with quality standards.

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APPENDIX A

June 2, 2000

Dear Fellow State Fire Department,

I'm examining the viability of the Salina Fire Department's participation in the state hazardous materials program. This research is part of a project for my Executive Officer's Program at the National Fire Academy. But, while this is a research project it's also something that's very important to the Salina Fire Department.

If you could provide me with some information through the enclosed questionnaire I would sincerely appreciate it.

As always, with NFA research projects there's a timetable for finishing the research paper. So, if you could send your reply as soon as possible, I would appreciate it.

If you would like a copy of my research just answer yes to that question on the questionnaire.

Thanks for your time.

Steve Moody
Deputy Fire Chief

APPENDIX B

Examining the Viability of Being a Participant in the State Hazardous Materials Program Survey

1) Why was your department interested (or not interested) in becoming a regional hazmat program host?

Answers included:

want to provide better protection for their community, already a center for training, the only department in the region, additional training would benefit them, opportunity to train and coordinate with neighboring departments, need and location, don't have the space for equipment, don't have the necessary resources, could better utilize their technician's skills, cost and inadequate space, location, state wide cooperation.

2) What financial expense does your department currently incur for hazmat?

Answers included; $30,000, blank, $2,000, less than $1,000, less than $1,000, very little now, $45,000, no line item, no estimate, $8,000, $500, $24,000, $45,000, small, blank, $10,000, blank, $1,500, $500, $20,000,$25,000, we put a lot of money in for training, and $10,000.

3) Does your department anticipate increased expenses through their involvement in the state's hazmat program?

   Yes No

   If yes, what's your estimate of the costs?

   $_____

If your department doesn't have an idea of an estimate, what's your department willing to incur in additional expenses?

Answers to this question included; no [if any costs would be minimal], no, yes [dependent on more information], no, yes [small], no, yes [unknown], no, no, no, no, no, yes [unsure at this time], no, no, no, no, yes [$1,500], no, no, yes [$10,000-$15,000 dependent on city commission agreement, no.

4) What benefits do you anticipate from involvement in the state's program?

Answers to the is question were; personnel trained to a higher level and reduced response time, training and more exposure to hazardous materials events, increased proficiency of technicians and improved public relations, financial support for training materials/equipment, access to proper equipment and materials without incurring the full cost, unknown, improved training and knowledge, more reliable assistance and getting our own people involved more, additional [equipment, training and call load], none, blank, training and better response and teamwork between departments, increased level of response and interdepartmental coordination, n/a, having a hazmat response team class, a most needed entity in our part of the state, those departments that are able to put together teams will have assistance, keeping people trained and more responses and help in purchasing equipment, having resources within a reasonable distance, getting technicians and specialists properly trained and recertified and paid by the state, another avenue for training and assistance from outside, not sure at this time.

5) On a scale of 1-10, with 10 being complete faith and 1 no faith, what faith do you have in the success of the state program?

1 2 3 4 5 6 7 8 9 10

The answers included; 8, 9, 6, 5, 6, not sure, 8, 7, 9, 3, 4, 8, 9, 5, 9, 8, 5, 7, 7, 5, 7, 5, 4.

6) What things would you like to see in the state program that are not currently there? Answers included; a better explanation of how the program will operate, uniformity, not enough information on the state program, blank, I haven't seen a final copy, for the State Fire Marshal to keep his hands off of it, training objectives and standardization of equipment, a training program, the presence of progress reports and a request for more input, there's nothing there now so anything will be an improvement as far as state wide, coordination of a comprehensive state program and call reimbursement for responding agencies and regional response meetings to coordinate training and mutual aid training paid for by the state, better oversight, time tables, none currently, unknown, haven't seen the entire program but would like to see annual budget funded by the state and annual training requirements and minimum list of equipment necessary for regional teams and standard operating procedures and a means of replacing equipment blank, questions [who will supply the equipment needed and who will pay for equipment and whose command is it and who will insure these teams, more technician and refresher training], blank, still waiting to see what the program will consist of, training and training and training.

7) Does your department provide added financial incentives to those trained:

Operations Level	yes	no	n/a
Technician Level	yes	no	n/a
Specialist Level	yes	no	n/a

None of the respondents give incentive for operations level training, three (3) respondents indicated that they gave financial incentive for technician level training and one (1) respondent gave incentive for specialist.

8) Does your department provide hazmat training on-duty or off-duty?

Fifteen responded both, six responded on duty and one left it blank (Appendix B).

9) Where does your department currently receive its financial support for hazardous materials management? (city taxes, county taxes, hazmat fees, federal grants, industry assistance, etc.)

Nineteen (19) respondents indicated that they receive hazmat funds from city taxes and five from county tax. Two (2) respondents get funds from the Kansas Department of Emergency Management, three (3) use cost recovery, one (1) federal grants, and one (1) uses private industry.

10) Would you like a copy of the research paper?
Yes No

Sixteen (16) responded yes and six (6) responded no.

APPENDIX C

Regional Hazmat Email Questionnaire #1

State Hazmat Administrator,

My name is Steve Moody and I'm the Deputy of the Salina Fire Department in Salina, Kansas. The State of Kansas is implementing a regional response hazmat program and our department is researching the decision of becoming a regional response agency. The reason I'm contacting you is for assistance is to get information concerning your regional hazmat program. I would appreciate it if you would take the time to answer the questions listed below.

1) What history led up to the establishment of a regional hazmat program in your state?

2) What costs do the regional participant departments in your state incur?

3) What financial avenues are in place to offset the cost of the regional hazmat response program?

4) What financial aspects of the program are covered by the state?

5) How is response costs recovered?

6) How many members make up the hazmat response team?

7) What equipment do you carry on your hazmat response unit.

8) What problems have you had with your program?

9) How are funds generated for your program?